

Artificial Intelligence (AI) for Climate Change and Disaster related statistics

Session 3: Complementary data for official statistics

Artificial Intelligence (AI)

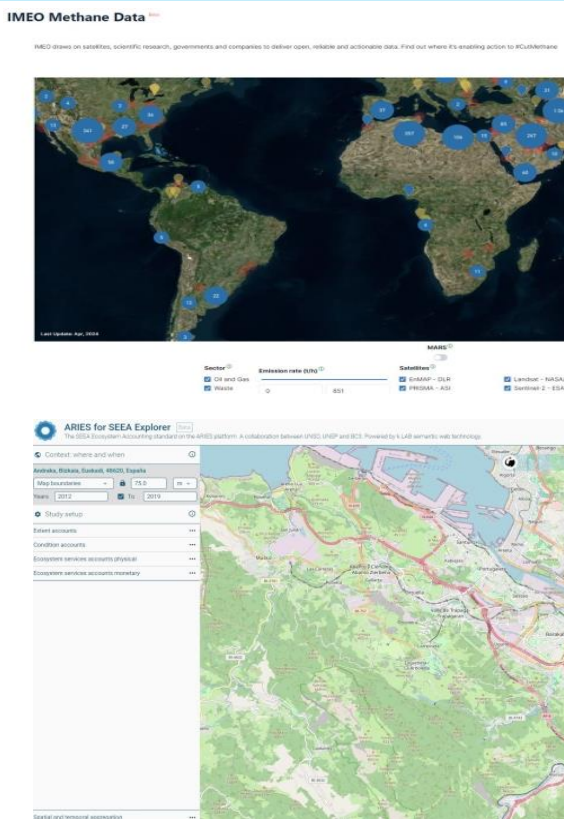
Overview

- AI enables real-time insights, predictive analytics, and actionable data to enhance preparedness, mitigation, and sustainable decision-making.
- AI solutions are already used both within the UN system as well as by other organizations and entities.



AI role in tackling environmental challenges

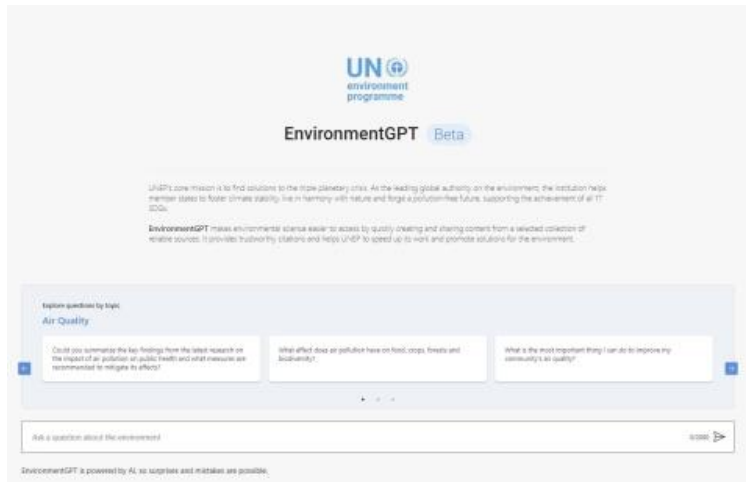
Use cases



- **UNEP International Methane Emissions Observatory (IMEO):** Notifies governments and companies of emissions to enable action using Methane Alert and Response System (MARS), the first global satellite detection and notification system providing actionable data on very large methane emissions around the world with over a dozen satellite instruments, coupled with scientific expertise and advanced AI.
- **Artificial Intelligence for Environment & Sustainability (ARIES) for System of Environmental Economic Accounting (SEEA):** researchers at the Basque Centre for Climate Change ([BC3](#)), is an integrated, open-source modelling platform for environmental sustainability, where researchers from across the globe can add their own data and models to web-based repositories. The Explorer allows users anywhere in the world to produce rapid, standardized, scalable and customizable ecosystem accounts for their area of interest that are consistent with the SEEA Ecosystem Accounting framework. It supports international collaboration in the development of official statistics using new data sources and innovative methods.

AI role in tackling environmental challenges

EnvironmentGPT

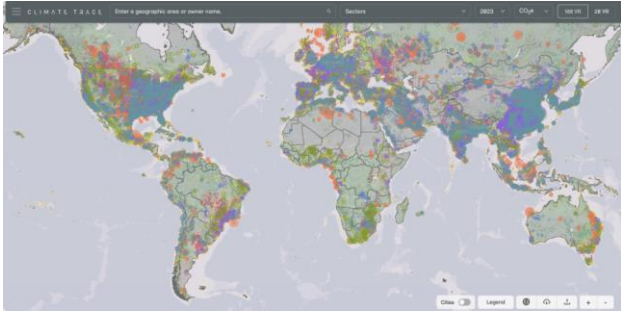


EnvironmentGPT: Using AI to transform environmental science into understandable information. The beta version covers the following topics:

- Climate Change
- Air quality

AI role in tackling environmental challenges

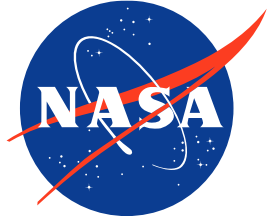
Climate Data Analysis



- **Climate TRACE:** In addition to satellites and other remote sensing techniques, the tool uses Artificial Intelligence to deliver a detailed look at global emissions in close-to-real-time.

AI role in tackling environmental challenges

Disaster Prediction and Early Warning



**EARTH SCIENCE
APPLIED SCIENCES**

- **NASA** developed a suite of datasets and tools aiding in accessing disaster statistics and indicators with the aim of disaster prediction and early warning.

Deltares

- **Deltares'** iD-Lab provides policy- and decision-makers in the water world with the option of identifying flood and drought risks, in both real-time and ten days into the future

Conclusion



Climate change and disaster related statistics benefits from AI:

- Analyses of Voluminous Satellite Data
- Predicting Extreme Weather Events
- Early Warning Systems
- Carbon Emission Tracking
- Water and Agriculture Monitoring
- Biodiversity Monitoring

Additional benefits:

- Optimizing Renewable Energy
- Urban Heat Mapping
- Community Risk Analysis

Thank you



Patryk Guenther

Statistical Analysis Specialist

patryk.guenther@un.org

Dany Ghafari

Programme Management Officer

dany.ghafari@un.org

SDG and Environment Statistics Unit
Early Warning and Assessment Division

United Nations Avenue, Gigiri
PO Box 30552 – 00100 GPO Nairobi, Kenya

www.unep.org